

WHAT IS CLAIMED IS:

1. A GPS navigation apparatus for having a present position displayed on a display unit thereof while receiving a GPS signal to store data of the present position in memory means at an interval of fixed movement distance or fixed time interval, and having the position data stored in said memory means as specific points when a designation is given by point establishing means during the movement process, and capable of giving a track name to a group of time series data, composed of said movement locus data from the start point to the destination and position data of said specific points, for registering, comprising:

5 track designating means for having a previously registered track name displayed on said display unit for selecting and designating a desired track,

10 route creation designating means for designating creation of a conversion route with respect of the track designated by said track designating means,

data extracting means for extracting position data only of the start point, specific points, and the destination from data group of the designated track names based on designation by said route creation designating means, and

15 interpolation data producing means for producing interpolation data linearly connecting between positions indicated by data extracted by said data extracting means in said time series sequence,

20 wherein, in a navigation mode, the conversion route having said start point, specific points, and destination connected by straight line segments by use of said interpolation data is displayed on said display unit for execution of the navigation.

2. A GPS navigation apparatus for having a present position displayed on a display unit thereof while receiving a GPS signal to store data of the present position in memory means at an interval of fixed movement distance or fixed time, and having the position data stored in said memory means as specific points when a designation is given by point establishing means

5 during the movement process, and capable of giving a track name to a group of time series data, composed of said movement locus data from the start point to destination and position data of said specific points, for registering, comprising:

track designating means for having a previously registered track name displayed on said display unit for selecting and designating a desired track,

10 route creation designating means for designating creation of a conversion route with respect of a track designated by said track designating means,

data extracting means for extracting only position data of the start point, specific points, and the destination from data group of the designated track names based on designation by said route creation designating means,

15 route determining means for deriving the shortest route from the start point to the destination passing through all the specific points based on the data extracted by said data extracting means, and

20 interpolation data producing means for producing interpolation data linearly connecting the start point, specific points and the destination, related to the shortest route derived by said route determining means,

wherein, in a navigation mode, said shortest route by use of said interpolation data is displayed on said display unit for execution of the navigation.

3. A GPS navigation apparatus according to claim 1, wherein said specific point is a position at a time point when designation is given by the point establishing means during a movement process (hereinafter referred to as a "WAY-POINT").

4. A GPS navigation apparatus according to claim 2, wherein said specific point is a position at a time point when designation is given by the point establishing means during a movement process (hereinafter referred to as a "WAY-POINT").

5. A GPS navigation apparatus according to claim 1, wherein said specific point is a position of a case where the position outside of a movement route is designated by the point establishing means during a movement process (hereinafter referred to as a "MARK-POINT").

6. A GPS navigation apparatus according to claim 2, wherein said specific point is a position of a case where the position outside of a movement route is designated by the point establishing means during a movement process (hereinafter referred to as a "MARK-POINT").

7. A GPS navigation apparatus for having a present position displayed on a display unit thereof while receiving a GPS signal to store data of the present position in memory means at an interval of fixed movement distance or fixed time, and having respective position data stored in memory means with an identification data indicating either one of the specific points attached thereto when either WAY-POINT or MARK-POINT is selected from point establishing means for designating during a movement process thereof, and capable of giving a track name to a group of time series data, composed of said movement locus data from the start point to the destination and position data of said WAY-POINT and MARK-POINT, for registering, comprising:

10 track designating means for having a previously registered track name displayed on said display unit for selecting and designating a desired track,

route creation designating means for designating creation of a conversion route accompanied with selection of either WAY-POINT or MARK-POINT with respect of the track designated by said track designating means,

15 data extracting means for extracting only position data of the start point, one type of the specific points related to said selection, and the destination from data group of designated track names based on designation by said route creation designating means, and

interpolation data producing means for producing interpolation data linearly connecting positions indicated by the data extracted by said data extracting means in said time series sequence,

20 wherein, in a navigation mode, the conversion route linearly connecting said start point, specific points and destination by use of said interpolation data is displayed on said display unit for execution of navigation.

8. A GPS navigation apparatus for having a present position displayed on a display unit thereof while receiving a GPS signal to store data of the present position in memory means at an interval of fixed movement distance or fixed time interval, and for storing respective position data in memory means with identification data indicating either one of the specific 5 points attached thereto when either a WAY-POINT or MARK-POINT is selected by point establishing means during a movement process thereof and designation is given, and capable of giving a track name to a group of time series data, composed of said movement locus data from the start point to the destination and position data of said WAY-POINT and MARK-POINT, for registering, comprising:

10 track designating means for having a previously registered track name displayed on said display unit for selecting and designating a desired track,

route creation designating means for designating creation of a conversion route accompanied with selection of either a WAY-POINT or MARK-POINT with respect of the track designated by said track designating means,

15 data extracting means for extracting only position data of the start point, one type of the specific points related to said selection and the destination from data group of the designated track names based on designation by said route creation designating means,
route determining means for deriving the shortest route from the start point to the destination passing through all the specific points related to said selection based on the data extracted by said 20 data extracting means, and

interpolation data producing means for producing interpolation data linearly connecting the start point, specific points and the destination related to the shortest route derived by said route determining means,

25 wherein, in a navigation mode, the shortest route by use of said interpolation data is displayed on said display unit for execution of the navigation.